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Residues of Melamine Persist in Meat of Broiler Fed In-Feed Larvacide after Mandatory Withdrawal Period

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Abstract

Larvacides are commonly used in poultry feed to alter the moulting stage of houseflies (*Musca domestica*) which hatch on droppings, hence reducing the population of flies and smell nuisance in poultry houses. Cyromazine, an active ingredient in larvacides, has melamine as a metabolite which became a public health concern after the death of 9 infants and hospitalisation of 294,000 others after taking melamine tainted infant formula. However, cyromazine is widely used to reduce smell from poultry litter and to increase nitrogen content which usually translates to higher weight gains in broilers without the knowledge of its residual effect on tissues of animals. In this study, residues of in-feed larvacide in broiler tissues was investigated.

All protocols used in this study were approved by the Animal Care and Use Review Committee guidelines of Centre of Excellence in Agricultural Development and Sustainable Environment, Federal University of Agriculture, Abeokuta, Nigeria. One-hundred and sixty day old Arbor Acre broilers of approximately 40 g body weight were used in the study. Four diets were formulated to contain cyromazine at 0, 0.25, 0.50 and 0.75 g kg⁻¹ and they were assigned to 4 dietary groups consisting of 4 replicates per treatment of 10 birds each in a completely randomised design for 42-days feeding trial. A bird per replicate (4 birds treatment⁻¹) was sacrificed to harvest tissue for residue determination at week 7, 8, 9 and 10 to establish a 7, 14, 21 and 28 days withdrawal period. Results indicated that cyromazine residue in meat (thigh and drumstick) were higher ($p < 0.05$) in the treated groups than the control group, which also contained residue of melamine. In conclusion, residues of cyromazine and melamine were left in the tissues of broiler chickens even up to 28 days withdrawal period, which is higher than the maximum allowable limit by WHO.

Keywords: Cyromazine, larvacide, melamine, residue, chicken meat